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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,856	01/12/2004	Maurice Gell	UCT-0040	8424
23413	7590	11/15/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002				SAVAGE, JASON L
		ART UNIT		PAPER NUMBER
		1775		

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/755,856	GELL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason L. Savage	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 30 August 2006.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) 1-15, 32, 53-58, 61 and 62 is/are withdrawn from consideration.
- 5) Claim(s) 63 is/are allowed.
- 6) Claim(s) 16-23, 26-31, 33-40, 43-52, 59 and 60 is/are rejected.
- 7) Claim(s) 24, 25, 41 and 42 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-23, 26-31, 33-40 and 43-52 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Padture et al. (Acta Mater. 49 (2001) 2251-2257 – article "Towards Durable Thermal Barrier Coatings with Novel Microstructures Deposited by Solution Precursor Plasma Spray)

With respect to claims 16-18 Padture discloses a thermal sprayed coating comprising aggregate microstructures having a diameter of approximately 600 nm, (p. 2254 – Figure 4 description). Although Padture describes the microstructure as revealing no conventional “splats”, the aggregate would meet the limitation of being a splat having the claimed dimensions. In the alternative, it would have been obvious.

With respect to claims 19-21 and 29 Padture discloses that the coating is porous and may have a porosity of 16.4% (p. 2253, Results) and since the structure is a microstructure, the pores are considered less than micrometer sized.

With respect to claims 22-23 and 39-40, although Padture does not explicitly recite the coating have at least one interpass boundary, it teaches that the sprayed coating may conventionally be used as a Thermal Barrier Coating which is typically applied to a alumina surface of a bond coat (p. 2255 – Discussion). It is the position of the Examiner that the alumina coating would meet the limitation of being an interpass boundary. Regarding the thickness as recited in claims 23 and 40, although Padture is silent to the thickness, the alumina formed layer would be relatively thin. Absent a teaching of the criticality of showing of unexpected results, the claimed thickness would not provide a patentable distinction over the prior art.

With respect to claims 26-27 and 47, Padture teaches the coating have at least one vertical crack (p. 2255 – Discussion and Figure 2(a)). Regarding claims 27 and 47, the cracks appear to have lengths equal to the thickness of the coating (Figure 2(a)).

With respect to claims 28, 30 and 48, Padture teaches the coating thickness may be 250 micrometers and the crack spacing is between 100-300 micrometers which meets the claim limitations (p. 2252 – Processing and p. 2254 – Results and Figure 2(a)).

With respect to claims 31, 33-36, the coating of Padture is a thermal barrier comprising a yttria stabilized zirconium oxide comprising 7 percent by weight of yttria (p. 2252 - Processing).

With respect to claims 37-38, 43-45, 49-52, as previously set forth above, Padture teaches a thermal barrier coating having splats within the claimed size range, thickness of 250 micrometers, vertical cracks and porosity of 16.4%.

With respect to claim 46, the porosity in the coating of Padture would be three dimensional.

Claims 59-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Padture et al. (Acta Mater. 49 (2001) 2251-2257 – article “Towards Durable Thermal Barrier Coatings with Novel Microstructures Deposited by Solution Precursor Plasma Spray) as applied to claims 16-23, 26-31, 33-40 and 43-52 above, further in view of Chow et al. (US 2002/0031658).

Padture teaches what is set forth above but it is silent to forming a coating having the claimed splat structures wherein the porosity is 10% or less. Chow discloses a method thermal spray coating employed fine droplets which form aggregate splat microstructures having a dimensions smaller than those using powder feedstock (par. [0024]). Chow further teaches that the coatings may be subjected to post deposition techniques which allow for tailoring and adjustment of the coating properties including the porosity (par. [0039]). It would have been within the purview of one of ordinary skill in the art to have recognized that the porosity of the coating of Padture could be adjusted from 16.4% to other porosity values in order to tailor the material to be suited for the application in which it will be used. Absent a teaching of the criticality or showing

of unexpected results when the porosity of the claimed coating is 10% or less, it would not provide a patentable distinction over the prior art of Padture as modified by Chow.

***Response to Arguments***

Applicant's arguments with respect to claims 16-23, 26-31, 33-40, 43-52 and 59-60 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

The prior indication of allowability of claims 28 and 47-48 in the Office Action mailed 5-30-06 has been withdrawn in view of the rejections set forth above.

Claim 63 is allowed.

Claims 24-25 and 41-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jason Savage  
11-13-06



JENNIFER MCNEIL  
SUPERVISORY PATENT EXAMINER  
11/13/06